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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/776,355	02/11/2004	Ralph J. Koerner	202/547	3186

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EXAMINER

KAUFFMAN, BRIAN K

ART UNIT	PAPER NUMBER
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3765

DATE MAILED: 09/21/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/776,355

Applicant(s)

KOERNER, RALPH J.

Examiner

Brian K Kauffman

Art Unit

3765

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 February 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-34 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 31-34 is/are allowed.
- 6) ☒ Claim(s) 1-25 and 27-30 is/are rejected.
- 7) ☒ Claim(s) 26 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-7, 9-10, 12, 17-20, 23-24, and 27-30 are rejected under 35 U.S.C.

102(b) as being anticipated by Mulcahey et al. (5,664,508). In regard to claims 1-7 and 9, Mulcahey et al. discloses an apparatus for stitching together two or more stacked planar layers, the apparatus including: a stitch head (fig. 1) mounted at a fixed location and actuatable to insert a stitch through a stack of two or more planar layers located beneath the stitch head; a substantially horizontally oriented bed (32) for supporting the stack of planar layers for manually guided movement (col. 5, lines 43-44) across the bed beneath the stitch head; detector means for detecting movement of a surface of the stack proximate to the stitch head for producing signals representing the magnitude of stack surface movement; and control circuit means responsive to the signals indicating stack surface movement exceeding a certain threshold for actuating the stitch head to insert a stitch through the stack (col. 5, lines 37-60).

In regard to claims 10, 12, and 17- 20, Mulcahey et al. discloses a machine for stitching at least one fabric layer, the machine comprising: an upper arm and a lower arm mounted in vertically spaced substantially parallel relationship to define a throat space therebetween (fig. 1); a substantially horizontally oriented plate (32) on the lower

Art Unit: 3765

arm for supporting the fabric layer for guided movement in the throat space; a needle arm supported from the upper arm above the plate actuatable to insert a stitch into the fabric layer (fig. 1); a detector (50, 52) for detecting movement of a surface of the fabric layer in the throat space; and control circuitry responsive to detected movement of the fabric layer surface for controlling actuation of the needle arm (col. 5, lines 37-60).

In regard to claims 23-25 and 27-30, Mulcahey et al. discloses a method of forming successive stitches of uniform length through a stack of fabric layers having top and bottom surfaces, the method comprising: mounting an actuatable stitch head at a fixed location (fig. 1); manually moving the stack of fabric layers across a horizontal planar surface under the stitch head; and actuating the stitch head in response to a certain magnitude of detected stack movement to insert a stitch through the stack fabric layers (col. 5, lines 37-60).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.

Art Unit: 3765

4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 8, 13-15, 21-22, and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mulcahey et al. (5,664,508) in view of Nomura et al. (4,982,677). In regard to claim 8, Mulcahey et al discloses that the detector means includes a light source for illuminating the stack surface (col. 4, lines 19-31); however, Mulcahey et al. does not disclose a means for processing light reflected from the illuminated layer for determining the magnitude of movement of the stack surface. Nomura et al. does disclose a means for processing light reflected from the illuminated layer for determining the magnitude of movement of the stack surface (col. 5, lines 20-25). Processing the reflected light allows for the two layers to be automatically aligned by the machine (col. 7, lines 41-51). It would have been obvious to one having ordinary skill in the art at the time the invention was made to adapt the sensors in Mulcahey et al.'s device to have the ability to process light reflected from the illuminated layer for determining the magnitude of movement of the stack surface as suggested by Nomura so that the two layers may be automatically aligned by the machine.

In regard to claims 13-15, Mulcahey et al. does not disclose that the detector include a window oriented to collect energy from the fabric layer surface proximate to the plate; a signal processing means responsive to energy collected by the window for producing signals representing the magnitude of movement of the fabric layer across the plate; a source of energy for illuminating the fabric layer surface to reflect energy into the window; and does not require that the source of energy comprise a light source and that the window collects window collects light images reflected from the fabric layer

Art Unit: 3765

surface. Nomura et al. does disclose that the detector include a window oriented to collect energy from the fabric layer surface proximate to the plate; a signal processing means responsive to energy collected by the window for producing signals representing the magnitude of movement of the fabric layer across the plate; a source of energy for illuminating the fabric layer surface to reflect energy into the window; and require that the source of energy comprise a light source and that the window collects window collects light images reflected from the fabric layer surface. The characteristics of Nomura et al.'s detector allows for the two fabric layers to be automatically aligned by the machine (col. 7, lines 41-51). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the sensors in Mulcahey et al.'s device to include a window oriented to collect energy from the fabric layer surface proximate to the plate; a signal processing means responsive to energy collected by the window for producing signals representing the magnitude of movement of the fabric layer across the plate; a source of energy for illuminating the fabric layer surface to reflect energy into the window; and require that the source of energy comprise a light source and that the window collects window collects light images reflected from the fabric layer surface. The added characteristics would have allowed for the two fabric layers to be automatically aligned by the machine.

In regard to claims 21 and 22, Mulcahey et al. discloses an apparatus for inserting stitches of uniform length through a stack of one or more fabric layers, the apparatus comprising: a stitch head (fig. 1); a bed (32) defining a substantially horizontally oriented planar surface mounted opposite to the stitch head, the planar

Art Unit: 3765

surface being configured to support the stack for guided movement across the planar surface; the stitch head including a needle (16, 17) operable to execute a cyclic movement from an up position remote from the planar surface to a down position piercing the stack on the planar surface, and back to the up position; and control means responsive to a translational movement of the stack of a magnitude exceeding a certain threshold for causing the needle to execute the cyclic movement (col. 5, lines 37-60).

Mulcahey et al. does not disclose that the apparatus include a detector defining a window for collecting energy from a target area substantially coincident with the surface of the stack; and a signal processing means responsive to the collected energy for indicating the magnitude of the stack translational movement across the planar surface.

Mulcahey et al. also doesn't disclose that the detector include a light source mounted to illuminate the stack surface in the target area wherein the window is oriented to collect light images reflected from the target area. Nomura et al. does disclose that the apparatus include a detector defining a window for collecting energy from a target area substantially coincident with the surface of the stack; and a signal processing means responsive to the collected energy for indicating the magnitude of the stack translational movement across the planar surface. Nomura et al. also discloses that the detector include a light source mounted to illuminate the stack surface in the target area wherein the window is oriented to collect light images reflected from the target area (col. 5, lines 20-25). The characteristics of Nomura et al.'s detector allows for the two fabric layers to be automatically aligned by the machine (col. 7, lines 41-51). It would have been obvious to one having ordinary skill in the art at the time the invention was made to

Art Unit: 3765

modify the Mulcahey et al.'s device to include a detector defining a window for collecting energy from a target area substantially coincident with the surface of the stack; a signal processing means responsive to the collected energy for indicating the magnitude of the stack translational movement across the planar surface; and require that the detector include a light source mounted to illuminate the stack surface in the target area wherein the window is oriented to collect light images reflected from the target area as suggested by Nomura et al since these characteristics of a detector would allow for the two fabric layers to be automatically aligned by the machine.

In regard to claim 25, Mulcahey et al. does not disclose that the step of detecting the movement of the stack include providing an energy source for illuminating the target area of the surface of the stack; and collecting energy images to determine the magnitude of movement of the stack. Nomura et al. does disclose that the step of detecting the movement of the stack include providing an energy source for illuminating the target area of the surface of the stack; and collecting energy images to determine the magnitude of movement of the stack (col. 5, lines 20-25). The characteristics of Nomura et al.'s detector allows for the two fabric layers to be automatically aligned by the machine (col. 7, lines 41-51). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the Mulcahey et al.'s method to include providing an energy source for illuminating the target area of the surface of the stack; and collecting energy images to determine the magnitude of movement of the stack as suggested by Nomura et al because these characteristics of a detector would allow for two fabric layers to be automatically aligned by the machine.

Claims 11 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mulcahey et al. (5,664,508) in view of Ebata et al. (6,470,813). In regard to claims 11 and 16, Mulcahey et al. does not disclose that the detector operates to produce X and Y signals respectively representing the magnitude of translational movement of the fabric layer surface along perpendicular X and Y axes. Ebata et al. does disclose that the detector operate to produce X and Y signals respectively representing the magnitude of translational movement of the fabric layer surface along perpendicular X and Y axes (col. 4, lines 4-12). The X and Y signals and translational movement are used as parameters to obtain stabilized stitching operation (col. 6, lines 48-54). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Mulcahey et al.'s detector to include the capability to produce X and Y signals respectively representing the magnitude of translational movement of the fabric layer surface along perpendicular X and Y axes as suggested by Ebata et al because signals of this type may be used as parameters to obtain stabilized stitching operation.

Allowable Subject Matter

Claim 26 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 31-34 are allowed.

The following is an examiner's statement of reasons for allowance: claim 26 specifically requires that the step of actuating the stitch head include moving the needle through a single cyclic movement in response to each increment of stack movement

Art Unit: 3765

greater than the certain magnitude of detected stack movement. Claims 31-34 specifically require a control means for causing the needle to execute cyclic movements at a rate substantially proportional to the rate of stack movement measured by the detector.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Homma et al. (5,170,733) discloses the movement of the needle to be actuated by detection of movement of the fabric layers into the sewing area. Adamski Jr. (5,370,0720) discloses control mechanisms for commencing sewing operations when the work material is at the stitch forming area.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian K Kauffman whose telephone number is (703)605-4933. The examiner can normally be reached on M-F every week.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Calvert can be reached on (703)305-1025. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 3765

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

BKK

A handwritten signature in black ink, appearing to read "Peter Norbun". The signature is fluid and cursive, with a large initial "P" and a long, sweeping underline.

Peter Norbun
Primary Examiner